

**IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE**

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RIM SHIELD

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1 **I. TITLE: "RIM SHIELD"**

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3 **II. BACKGROUND OF THE INVENTION**

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5 **1. Field of the Invention.**

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7 The present invention relates to a rim shield, and more particularly,
8 to a rim shield comprising of a plurality of louvers that are selectively
9 disposed in an arch.

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11 **2. Description of the Related Art.**

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13 Several devices for guarding rims for wheels have been developed in
14 the past. The object of these devices is to permit a user spray and clean
15 vehicles' tires without affecting the rims. Many of today's rims are
16 expensive and can be damaged with harsh chemicals used to clean the
17 rubber of the tires. None of them, however, includes a plurality of louvers
18 telescopically adjustable to different rim sizes. The shaft members in the
19 present invention are stacked and pivotally mounted to rotate over one
20 common point. A locking assembly locks the relative positions of the
21 louvers so that a user can selectively form an arch to cover a substantial
22 portion of a rim.

23

24 Applicant believes that the closest reference corresponds to U.S.
25 patent No. 4,792,191 issued to Farmer for an Automobile Wheel Protector.
26 This protector has fixed dimensions and can only be used for a given rim
27 size. The present invention, on the other hand, can be adjusted to protect
28 rims of different dimensions.

1 Other patents describing the closest subject matter provide for a
2 number of more or less complicated features that fail to solve the problem
3 in an efficient and economical way. None of these patents suggest the
4 novel features of the present invention.

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6 **III. SUMMARY OF THE INVENTION**

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8 It is one of the main objects of the present invention to provide a
9 guard for rims in wheels that permit a user to selectively form an arch to
10 protect a substantial portion of the rims during cleaning and washing
11 operations.

12

13 It is another object of this invention to provide a guard that is
14 volumetrically efficient and compatible with rims of different sizes.

15

16 It is still another object of the present invention to provide a rim
17 guard that can be readily handled with one hand freeing the user's other
18 hand for the cleaning and washing operation.

19

20 It is yet another object of this invention to provide such a device that
21 is inexpensive to manufacture and maintain while retaining its
22 effectiveness.

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24 Further objects of the invention will be brought out in the following
25 part of the specification, wherein detailed description is for the purpose of
26 fully disclosing the invention without placing limitations thereon.

1 **IV. BRIEF DESCRIPTION OF THE DRAWINGS**

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3 With the above and other related objects in view, the invention
4 consists in the details of construction and combination of parts as will be
5 more fully understood from the following description, when read in
6 conjunction with the accompanying drawings in which:

7

8 **Figure 1** represents front elevational view of the rim guard or shield
9 object of the present application protecting a car wheel rim.

10

11 **Figure 2** illustrates a rear elevational view of the invention fully open
12 with the louvers in a fully retracted disposition.

13

14 **Figure 3** represents a front elevational view of the first louver and its
15 corresponding shaft member.

16

17 **Figure 4** is a rear elevational view of the last louver mounted to a
18 shaft member.

19

20 **Figure 4a** is a cross-sectional view taken from line 5a-5a in figure 5.

21

22 **Figure 5** illustrates a top view of the rim shield with the louver
23 members aligned (closed).

24

25 **Figure 6** shows a side elevational view of the rim shield with the
26 louver members aligned (closed) with a partial cross section to show the
27 axle and the spacer fixed to the housing front wall.

1 **V. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

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3 Referring now to the drawings, where the present invention is
4 generally referred to with numeral 10, it can be observed that it basically
5 includes a plurality of louvers 40 with respective elongated shaft members
6 60 and housing assembly 80, as seen in figure 1.

7

8 As seen in figures 1 and 2, louver 40 has proximal end 42, distal end
9 44 and front and rear surfaces 43 and 45, respectively. Louver 40, in the
10 preferred embodiment, has a substantially truncated pie section shape,
11 opening between 50 and 70 degrees, as best seen in figure 3. The radius of
12 curvature of distal end 44 varies towards the sides of louver 40. The radius
13 of curvature is larger towards the sides and smaller in the central portion.
14 This optimizes the area that is covered by louvers 40 when overlapping.
15 Each louver 40 also includes elongated sliding track members 50 and 50'
16 radially mounted parallel to each other at rear surfaces 45, with proximal
17 ends 52 and 54, respectively, as best seen in figure 4. Sliding track
18 members 50 and 50' have a substantially L-shape cross-section to permit
19 elongated shaft members 60 to slide inbetween, as best seen in figure 4a.
20 Spring lock members 53 and 55 extend inwardly from ends 52 and 54,
21 respectively, as shown in figure 4.

22

23 Locking assembly 70 is integrated to louvers 40, as best seen in
24 figures 3, 4 and 4a. Locking assembly 70 includes, in the preferred
25 embodiment, cavities 76; 176; 276; 376 and 476 and cooperating protruding
26 ball 78. Protruding ball 78 protrudes from lifted section 77 of elongated
27 shaft members 60 near distal end 62, as best seen in figure 4a. Protruding
28 ball 78 has cooperative shape and dimensions to be received by cavities 76;

1 **176; 276; 376** and **476** of contiguous louver **40**. Cavities **76; 176; 276; 376** and
2 **476** are located at predetermined locations on louvers **40** since ball **78** will
3 engage them at different locations depending on the different rim sizes.
4 When louvers **40** are brought together (aligned) for storage, balls **78** engage
5 longitudinal slot **75** keeping the former in alignment. This disposition can
6 be overcome by apply a pulling force of a predetermined magnitude on
7 handle members **72** and **74** mounted on first and last louvers.

8

9 Elongated shaft members **60** are slidably received by track members
10 **50** and **50'** mounted on surface **45** of louvers **40**. Elongated shaft members
11 **60** include ends **62** and **64** and through opening **66**. End **62** is slidably kept
12 inside track members **50** and **50'**. Inner portion **68** of shaft member **60** is
13 thicker than outer portion **69**, as best seen in figures 6 and 7. Portions **68**
14 keep shaft members **60** in a parallel and spaced apart relationship with
15 respect to each other so that there is a clearance between adjacent shaft
16 members **60**.

17

18 Elongated shaft members **60** have notches **63** and **65** formed at the
19 lateral edges in a spaced apart relationship with respect to each other, as
20 best seen in figures 1, 2 and 4. Notches **63** and **65** releasably and camingly
21 receive spring lock members **53** and **55**, respectively. Spring members **53**
22 and **55** lock the different notches **63** and **65** corresponding different rim
23 sizes, as seen in figures 3 and 4. Elongated shaft member **60** also includes
24 through opening **66** next to end **64** in portion **68**, as best seen in figure 5. A
25 user initially brings louver **40** out depending on the diameter of the rim to
26 be protected. Then, louvers **40** slid laterally to cooperatively engage
27 locking assembly **70**. In this manner a user does not have to fumble with
28 louvers **40** to match cavities **76; 176; 276; 376** and **476**.

1 Handle member 72 has a substantially open U-shape and protrudes
2 from rear surface 45 of the last louver 40, as best seen in figures 4 and 5.
3 Handle member 74 protrudes from front surface 43 of the first louver 40, as
4 best seen in figures 3, 5 and 6. Handle members 72 and 74 are cooperative
5 disposed so the user can handle louvers 40 to set the preferred disposition
6 according to the dimensions of rim shield 10.

7

8 As best seen in figures 5 and 6, housing assembly 80 includes, in the
9 preferred embodiment, base 84 and spaced apart and parallel walls 85 and
10 85'. Housing assembly 80 also includes through opening 88 at wall. Thick
11 portions 68 of elongated shaft members 60 are stacked inside housing
12 assembly 80.

13

14 As best seen in figure 6, axle assembly 90 passes through housing
15 assembly 80 and it is mounted to opening 88 and wall 85'. Axle assembly
16 90 includes axle member 92, spacer 96 with through openings 97 and
17 handle member 98. Axle member 92 includes ends 93 and 94. Axle 92
18 passes through openings 88, 66, 97, and finally is rigidly mounted to wall
19 85'. Spacer 96 is rigidly mounted to wall 85. Shaft members 60 are
20 pivotally mounted to axle 92, as best seen in figure 6. As best seen in figure
21 5, handle member 98 is rigidly and perpendicularly mounted to end 93 of
22 axle member 92. A user set the position of rim shield 10 and holds handle
23 member 98 with one hand, thereby having his/her other hand free to
24 perform the cleaning operation.

25

26 The foregoing description conveys the best understanding of the
27 objectives and advantages of the present invention. Different embodiments
28 may be made of the inventive concept of this invention. It is to be
29 understood that all matter disclosed herein is to be interpreted merely as
30 illustrative, and not in a limiting sense.